BULLETIN
OF THE
SOUTH INDIAN MEDICAL ASSOCIATION.

JULY 1934.

THE INDIAN MEDICAL COUNCIL.

The proceedings of the newly created Council have been very much in the public eye recently. Almost all the important newspapers have devoted leading articles or long notes about the proceedings. Some of the prominent practitioners of the country have discussed in the columns of the press the results of the last meeting of the Council. Those who criticize adversely do so mainly on the following grounds. First, the Government of India have misused the powers of veto, second, that it is inherently wrong for the Secretary of the Council to be one of the three inspectors, and thirdly, that the actions of the Council and the Government of India are the result of dictation from the British Medical Council and as such is derogatory of India's self-esteem.

A casual acquittance with the Act is enough to show that the power of veto is meant to be used, and it is never used except when the vetoing authority disagrees with the discussion of the Council. We have yet to come across a single instance anywhere in the world when the opponents did not cry '*misuse* whenever the power of the veto was applied. Further we do not see what special difference it would make if the highly paid Secretary is also one of the inspectors. We could understand the objection, if it was based on the principle that since the inspectors have to report to the Council it would be helpful to the independence of the Council's judgment if the inspecting personnel were entirely different. But the opponents of this dual appointment were very vehement that the inspectors should be only members of the Council. There is therefore no point in this objection If the dissenting members were not known to be highly respected and honourable men, the cynic would be tempted to say that in their anxiety to share the crumbs, they completely lost sight of the wholesome principle mentioned above. It is really a matter for congratulation that the Government of India has completely turned this proposal down.

We have never been enthusiastic about this Council. While this measure was being shaped in the Legislative Assembly we pointed out that this Council was an extravagant substitute for the one Inspector of Medical Education whom the General Medical Council was very anxious to send out. The British Council failed in the attempt. The defeat made them delirious and rushed them into the indefensible action of withdrawal of recognition of all Indian Medical Degrees. It was expected that the Medical profession in India would get into sack-cloth and ashes, but it was militantly indifferent. If the state of affairs were allowed to continue for some time India would have forgotten of the existence of the General Medical Council. This would be derogatory to their self-esteem. To rectify this state, the Council has been yearning for some excuse to retrace their steps. An obliging government here has now provided them an opportunity. We are sure that the Council would shortly express satisfaction at the state of medical education in this country.

Governments sometime indulge in poetry. All the grandiloquent talk in the Assembly and communiques about maintaining efficiency at home and honour abroad were merely hints to people here to behave satisfactorily so that the General Medical Council might magnanimously undo its mistake. If the public would realize this, and especially if the dissatisfied members of the Council would appreciate this aspect, we are sure they would save themselves from being ridiculous. The Indian Medical Council itself is a result of pressure, persuation if you like, from the powers that be in England. For people who have considered worth while to take the trouble to become members of the Council, to cry out in new astonishment about dictation is somewhat amusing.

F. R. C. S. Examinations.

The Royal College of Surgeons of England has decided to hold the Primary Fellowship examination in India once a year beginning from 1934 if there are not less than 30 candidates presenting for the examination. It is notified that two examiners will be sent out from England, and we understand that Madras will be the centre for the examination. A fee of Rs. 360 has been tentatively fixed as payable by each candidate.

This will certainly be a landmark in the history of Medical education in this country and a certain amount of credit will go to the Indian Medical Council, which has lately begun to function. In this connection, one cannot forget the good services done, both by personal representation while on leave in England and through long correspondence with the College by Major-General C. A. Sprawson, I. M. S., Director-General of Indian Medical Service. It is entirely due to the strenuous work of General Sprawson that this country has been enabled to come abreast of the other great Dominions like Canada and Australia. Those who have had the good fortune to come in contact with him know well his enduring sympathy for all endeavours whereby the prospects and prestige of the Medical profession in this country could be advanced. Madras has reason to be proud that its late Surgeon-General should have been mainly responsible for this very great achievement. His personality and influence with the medical profession in England are well known.

Parents and students will in this scheme find much saving of money and time for advanced post-graduate studies. The final examination will, of course, be held in London for the present and we hope that before long examinations for all College diplomas are held in India.

Indian Medical Council.

I

We are at a loss to understand why there should be so much fuss about the Indian Medical Council. What is it that the Council has done which is so much against national interests as to have provoked a plethora of angry statements in the press? We have gone through many of these statements, and we fail to see the *raison d'etre* of the hullabaloo. The one serious complaint is that the Governor-General in Council has not approved of the suggestion that the Secretary of the Medical Council should not be an Inspector. It is said that this veto involves an infringement of the autonomy of the Council and that its exercise is with a view to placate interests keen on pulling strings from abroad.

As regards the first argument, all that need be said is that under the Act constituting the Medical Council the Governor-General in Council has the power of veto and in no sense can it be argued that in turning down the proposal the Government has acted arbitrarily or high-handedly. The members ought to know that, and it was *their* mistake if they happened to think that the statute had ceased to be operative when once the Council was brought into existence. The second argument has been answered in the letter addressed by the Governor-General in Council to the Secretary of the Medical Council.

"The intention underlying the provision which empowered the Governor-General in Council to appoint a Secretary for the first four years was to enable a suitable person to be appointed before the Act came into force, who would be able to do in particular all the preliminary work required for the speedy recognition of the qualifications granted by the Patna, Rangoon and Andhra Universities. The Government of India accordingly selected for the post a person of suitable qualifications who had considerable experience of inspections of medical examinations, and are unable to understand why the Indian Medical Council should have considered it necessary to prescribe that he should not be employed as an Inspector. In the opinion of the Government of India he fully possesses the requisite qualifications for appointment as an Inspector, and if he were so appointed he would be given only the travelling and halting allowances admissible to him, and the Council would save a considerable sum which would otherwise be payable to another Inspector as honorarium."

To read into this straightforward statement all sorts of motives and thereupon raise a huge structure of prejudice and suspicion is, to say the least, unfair.

And flimsier still are some of the other grievances hinted at in the statements of the protestants. For instance, what is there intrinsically wrong in the adoption of regulations for inspectors and rules for education and examination modelled on those of the General Medical Council in Britain? Rules and regulations are generally framed according to certain established standards, and, if the standards laid down in Britain are acceptable on meritish why should they be rejected on the ground that they are of British conception? Is it not true that some of the most important pieces of legislation embodied in the Indian statute-book are patterned after similar legislation adopted in Britain? Have they been open to objection on that ground?

It is true that the Government did not see eye to eye with the Council in the plea that seven Inspectors should be chosen, "if possible, from the

members of the Council," to visit and report on the courses of instruction at the various universities in India and Burma. But that was merely of because of the fear that by accepting the proposal the authorities would be committing themselves to extravagant and unjustifiable expenditure. Seven Inspectors to report on courses of instruction and three to report on examinations would mean that the cost for the inspection of each university would amount to Rs. 10,000. Certainly the Council would have proved a white elephant if it had its way.

However, there is ample proof to show that the intention of the authorities has not varied and is to enable the Council to attain the largest measure of "efficiency at home and honour abroad." They have approved the appointment of Inspectors made by the Executive Committee of the Council—Inspectors of whom only one is a European, the other two being Indians. Not merely that, it is also said that the panel of doctors chosen by the Committee to report on the courses of instruction and on the examinations at the universities in midwifery, medicine and surgery a panel that consists almost wholly of Indians has commended itself to the Government. In the circumstances, it seems to us that the fuss now being made and the hard things said are absolutely unwarranted. In fact, it looks like a case of "much ado about nothing."

Sunday Chronicle, July 1, 1934.

II

The proceedings of the Indian Medical Council yesterday, of which a report appears in another column, will be read with bitter disappointment by the members of the independent medical profession and by the public at large. They have justified the worst fears entertained of it. It may be recalled that some months ago, the Council, in the teeth of opposition of certain coterie, took certain decisions after the fullest discussion and deliberation. These decisions were not acceptable to members who represented the Government, for they upset the arrangements which the Government had, without any reference to the Council, made in regard to certain important matters. That what they had done was unseemly will be obvious to any impartial reader. They appointed a Secretary to the Council on a salary which was out of all proportion to the services required of that functionary. The reason was, it became subsequently known, that they had decided to foist this gentleman on the Council as its Inspector as well, charged with the duty of examining, on behalf of the Council, the course of studies, equipment and standards of instruction imparted in the medical institutions in the country. Under the the Act, it is the duty of the Council to lay down standards of education and to make arrangements to see, by proper inspection at necessary intervals, that the institutions which enjoy its recognition conform to those standards. It is a most responsible duty and the Council was naturally anxious to see that nobody interfered with its well-considered views in that matter. The members of the Council were surprised and indignant when they came to know from casual statements made by the spokesmen of the Govenment that the Secretary they had appointed was a nominee of the British Medical Council for appointment as Inspector and that unless the Government saw to the appointment of its nominee as Inspector, the British Council would not recognise the degrees granted on the authority of the Indian Council. The members of the independent medical profession felt scandalised at these arrangements which were

calculated to reduce the Indian Medical Council to the position of a body meant to carry out the behests of the British Council conveyed through its nominee. After a prolonged and acrimonious debate, the Council, at its first meeting, threw out the Government's suggestion and thereby upset their whole plans. Nothing daunted, however, and taking advantage of the fact that not only both the President and the Vice-President were their nominees and a large majority of the members Government servants generally amenable to their whip, the Government arranged to convene another meeting of the Council to undo what the Council had done at its earlier meeting. This meeting was held yesterday with the result that by 18 votes to 8 the Council cancelled its earlier resolution and carried the proposals of the Government! No wonder that the members of the independent medical profession feel, as the statement issued by Drs. B. C. Roy, Erulkar, Deshmukh and K. S. Roy shows, that the Medical Council has shown itself to be little better than a puppet in the hands of the Government and cannot be expected to fulfil the purpose which the country hoped it would.

—*The Hindu, June 13. 1934.*

UNION

IS

STRENGTH

Hospital Service

The IMPORTANCE of the *Hospital* in the social life of the community has come to be recognized more and more during the last decade, but not every hospital is entitled to be called modern. That term should be reserved for those hospitals which meet certain standard requirements imposed by a group of national medical associations of which the American Medical Association and the American College of Surgeons are the leading members. With the increased interest in hospital service, a system of rating has been developed and introduced in order that the public may know which hospitals meet the exacting requirements of this scientific age.

Most persons who are sick are not treated in hospitals. This large group is cared for at home; the patients make their own arrangements with physicians or have these arrangements made for them under philanthropic auspices.

Hospitals may be classified under two general headings. First, there is the public hospital which is supported entirely by the municipality, by the state or by the federal government. Thirty-four per cent of all hospital beds in New York City are in hospitals of this variety. These are the so-called "City" hospitals, municipal hospitals, state hospitals, hospitals of the U.S. Public Health Service, the U. S. Veterans Bureau hospitals, and army and navy hospitals. With the awakening of public opinion, the contributions of these institutions to public health progress is increasing, and a number of them are indeed in the front of hospitals. According to the beliefs of many physicians and of persons in the various professions engaged in social service, the municipal hospital represents, broadly speaking, the ideal way for the city to care for all the indigent sick,

The supporters of this theory argue that it is in the interest of a community to keep the population well, and that funds should therefore be provided by a system of taxation to be used for hospitals in much the same way as in the case of public schools which are maintained for educational purposes.

Out of the shortcomings of this type of hospital there arose a second great group which is now acknowledged to be the leader in scientific thought and activity. These institutions are supported by voluntary contributions and are referred to by the English as voluntary hospitals; in America, however, they are better known as private hospitals. These institutions sprang from a variety of motives. In some instances the motive was purely scientific, as in the case of the various research hospitals, of which the Rockfeller Institute in New York may be taken as an example. Often the motive was religious, as in the case of the many Catholic hospitals throughout the United States. Some arose from fraternal motives, examples of which may be cited in the Masonic hospitals, and finally some were established from purely philanthropic motives, as in the case of the ordinary non-sectarian hospitals which depend wholly on private benefactions for their existence.

In either type of hospital, but particularly in the voluntary type, the final governing body is composed of a board of directors or trustees with executive, legislative and judicial powers. This board is, as a rule, composed entirely of laymen with strong social impulses. Another important body in a hospital is the medical board which, as a rule, is composed of the senior members of the various medical, surgical, laboratory and special consulting staffs and which acts in most cases as an advisory body to the administration and to the board of trustees in all matters pertaining to medical construction, equipment, organization and administration.

The responsibility of the administration is twofold. There is the clinical or medical responsibility, which concerns the visiting doctor and the resident or house doctor, the dentist, the pharmacist, the nurse, the occupational therapist, the physical therapist, the dietetian, the social worker, the laboratory worker and last, but by no means least, the patient and his family. Then there is the business responsibility which concerns all other employees who are classified as "lay" employees; this deals with engineering, housekeeping, auditing and purchasing problems. The average hospital gives the impression of a hotel, except that its guests are sick and are classified in accordance with certain well defined social and medical standards.

Almost all large hospitals to-day are divided into two parts: the inpatient department for patients who must occupy beds during the greater period of their illness and the outpatient department, variously called the dispensary, polyclinic or ambulatorium, where walking patients are treated before and after their stay in the hospital, or where the condition from which they are suffering is such as to require only daily visits to the hospital. A few hospitals, and these are becoming increasingly more rare, have no outpatient department while a few dispensaries in the larger cities are of the so-called unattached variety and have no direct affiliation with any hospital. Modern hospital organisation regards one as complimentary to the other and the two as inseparable. Hospital administration is only one of the problems of the governing board. There are problems in hospital construction, which in a progressive hospital must be faced constantly. In the first place, the institution must be located and built to meet definite

community needs which exist at the time, and constant adjustments must be made in order to meet changes in these conditions. The hospital plant must be maintained so that it will give a maximum of service to the sick. There are also important problems in equipment, fixed or movable, scientific or household. And there are problems in organization which concern all the hospital workers, professional and non-professional, in their relation to hospital service. The demands for hospital facilities of various kinds must be met, and the relation of the supply to this demand must be studied with a view to making the necessary adjustments.

The various hospital activities must be organized, and changed when necessary, with an eye to efficiency, which means maximum comfort to the patients and the elimination of waste. Finally, the problem of the administration of all these activities must be considered. Service to the patient is and should be the criterion of administrative judgment, and the executive must ever be on the alert for necessary improvements in construction, equipment, organization and administration to meet the inexorable law of change which governs all progress.

The governing board is represented in the conduct of hospital business by an executive who is usually known as the director, superintendent, manager or administrator. As a rule, the executive lives on the hospital premises, and his activities cover a wide field since he must deal with almost every conceivable problem in government, business and medicine. The executive acts in the larger hospitals in co-operation with heads of departments. Thus, there are the heads of the social service department, the nursing department, the dietetic department, the outpatient department and the private section; there are also the heads of the pharmacy department, the accounting department, the engineering department, the house-keeping department and the purchasing department. The larger the hospital, the greater the degree of administrative specialization. All representatives of departments are experts in their chosen fields and render valuable service in the efforts of the executive to co-ordinate the activities of the hospital.

This division of labour is also evident in the medical departments. Thus, there are the directors or chiefs of the medical service and the surgical service as well as the various heads of special departments, such as the nose and throat department. There are also directors or chief of the various laboratory departments, such as the department of radiology, with sub chiefs for radiography (diagnosis) and radiotherapy (treatment), and the director of the main laboratory, with sub-chiefs for biochemistry, pathology, bacteriology and serology. The larger the hospital, the greater the differentiation of activities.

Hospitals are classified further in accordance with the social status of their patients. There are hospitals and sanatoriums which are administered for profit only and which admit only patients who can pay more than the cost of their upkeep. The most important classification of hospitals, however, is medical; this divides them into general hospitals and special hospitals. General hospitals as a rule accept both paying and free patients and treat all forms of disease, with the usual exception of contagious diseases, mental diseases, chronic diseases and often maternity cases. General hospitals care for acute short term cases only. They contribute 60 per cent of the hospital facilities in New York City.

The special hospital is built for the treatment of special diseases only. In this classification are found the eye and ear infirmaries, the women's hospitals, hospitals for the treatment of contagious diseases, maternity hospitals, neurologic institutes and hospitals for chronic diseases.

Another classification of hospitals which is of interest depends on whether or not the hospital is directly associated with a university in the teaching of medicine. Thus, there is the University hospital, of which the Johns Hopkins Hospital in Baltimore is an example, and the non-university hospital, of which any of the general hospitals may be taken as an example.

The major activities of a hospital and of its staff may be summed up under the headings of preventive medicine, diagnosis, therapy, teaching and research.

The most important development in the study of the public health problem is the emphasis that is now being placed on the possibilities of disease prevention. This is one of the functions of the hospital and health centre.

The next great activity is diagnosis, or the identification and recognition of disease processes. This function is shared by two groups. The physician, surgeon or specialist studies the history of the signs and symptoms in a given case and calls in the pathologist, radiologist, and other laboratory workers to help him in the classification and medical identification of his patient.

A third activity, which in the mind of the layman is the greatest, is the therapeutic function. This refers to the cure of disease conditions, an activity which rests mostly with the medical man, assisted by others such as the nurse and social worker. Social economic factors play a large part in the course of disease processes. The doctor speaks of "organic" diseases in referring to diseases of the body and of "functional" or other diseases of the mind. One really does not exist without the other, and the woes that affect the mind of the patient must be remembered when the general problem of disease is considered. It should be constantly borne in mind that all medical activities are interrelated and that no physician can afford to pay attention to one part of the body only, without considering the individual as a whole.

The fourth activity of a hospital is the teaching activity. A hospital teaches its visiting staff of doctors through the constant association between these doctors and their patients. It is, however, concerned more directly with the teaching of the resident or house doctors, sometimes called interns.

This group is composed of recent graduates from medical schools who continue their practical education at the hospital. The hospital must also teach the practitioners who see most of the sick in the community. Most general hospitals have well organized schools for nursing and some for dietetics, in association with their wards. Still another teaching function concerns the relationship between the hospital and the public in its vicinity. The layman is often treated to a distorted view of scientfic facts through the commercial activities of a motley collection of quacks. It is the function of the hospital and related scientific organizations which are in possession of the true facts, to carry on the teaching.

Another important activity of the modern hospital is the problem of research. There is clinical, or bedside, research and there is laboratory re-

search. Every case of sickness deserves careful study, no matter how much has already been learned about it in the past. A series of facts must be recorded continuously in order that definite scientific inferences may be drawn from them. The purpose of all this study is to provide the physician with a set of accurate data which will enable him to be of greater benefit to the next sufferer in line. Laboratory research, as an aid to clinical research, includes studies that are made in the so-called fundamental sciences of medicine, such as pathology, bacteriology, serology, physics, chemistry and the various biologic sciences. The history of the science of medicine has a number of brilliant pages to its credit, pages which would never have been written had it not been for the investigative mind of the research worker. The postmortem room, where accuracy must obviously prevail, is an obligation which the community owes to the sick.

How is the hospital of the voluntary, or private type financed? Ideally, a hospital which is so closely associated with humanitarian purposes should be so well endowed with funds that the interest on its invested capital would suffice to carry on its varied activities. The large voluntary hospitals of this country have annual budgets which reach as much as $ 1,000,000 or more; naturally, a large amount of capital is required to insure such an income. Since the millennium has not yet arrived, however, such hospitals must be content with part and depend on the endowment of individual activities either for a short period or in perpetuity. One can endow a bed, a room, a ward, a building, a clinical department, a laboratory department or a fellowship for research work, or one can simply add to the general endowment fund for the everyday uses of the hospital. Few hospitals have extensive endowment funds and most of them live from hand to mouth and manage to pile up, as Dr. Goldwater says, "an annual deficit which is often the symbol of a noble ambition". Occasionally donations are made to establish, but not to maintain, certain activities. One can see how in a case of this sort the hospital is hard pressed to provide the additional funds with which to carry on such activities.

The income for the typical voluntary hospital is usually derived from a community chest or from an organization, such as the United Hospital Fund in New York, which distributes money annually in the basis of free treatment given by its constituent hospitals. Income may also come from private patients, part-paying ward patients and dispensary patients. This income depends largely on the extent of the private facilities of the hospital and on the popularity of its private section. The municipality usually subsidises the hospital for the care of public charges. In New York City, hospitals are paid about half of the cost of the upkeep of the patient, provided the case is urgent and the patient lives within the hospital district and is too sick to apply to a city hospital for treatment. Income also accrues from legacies and from general and specific endowment funds provided by the benefactions of philanthropists.

A hospital, regardless of its classification, must maintain a place on the firing line of medical progress, and under these circumstances its problems are many. The medical organization of any modern hospital must contribute its share of scientific work to medical and public health literature. The organization must do its best to prevent sickness whenever possible, to recognize sickness as early and as accurately as possible, to relieve sickness as rapidly and efficently as possible, to teach better methods to others and to develop new methods which will help the medical profession

and the public to improve those now in use. And, most important, it must carry on all these activities with the interests of the sick constantly uppermost in mind.—E. M. Bluestone in *Hygeia*, May 1934.

Valvular Disease of the Heart.

Aetiology.—Primary valvular lesions of the heart valves occur in five groups of conditions, *viz.*,

1. Trauma.
2. Rheumatic infection.
3. Syphilitic infection.
4. Miscellaneous infections as in gonococcal infection, etc. These are less common.
5. Congenital valvular diseases.

Besides these five groups of conditions sclerotic valvular lesions are seen in the old and middle aged with general arterio-sclerosis.

Incompetence of the various valves may occur even when they are healthy, by disease of the heart. This is more common on the right than on the left side. The factors which produce such a relative incompetence are :—

1. Dilatation of the cavity of the heart.

2. Enlargement of the orifice owing to relaxation of surrounding muscular structures.

3. Both enlargement of the cavity and widening of the orifice and

4. Shrinkage or stretching of the papillary muscles or chordae tendinae.

Rheumatic affection is seen more in the mitral valves while syphilitic changes involve the aortic valves in a large percentage of cases. Of course, both infections involve other valves in some cases. Undue strain of the heart, especially intermittent high blood pressure or injudicious exercise are also looked upon as causes for disease of the aortic valves. They give way when the force becomes too much for them to bear. Congenital affections are seen more in the case of the pulmonary valves.

In general, valvular lesions are of two types.

(1) Obstruction to the passage of blood from one chamber to another and

(2) Regurgitation of the blood from one chamber to another without coursing through the normal outlet. Thus whatever be the cause and subsequent pathology of valve lesions the effects are more or less the same. We can classify the lesions according to the different valves in which it occurs as follows :—

(i) Mitral regurgitation.
(ii) Mitral stenosis.
(iii) Aortic regurgitation.
(iv) Aortic stenosis.
(v) Pulmonary regurgitation.
(vi) Pulmonary stenosis.
(vii) Tricuspid regurgitation and
(viii) Tricuspid stenosis.

Mitral Regurgitation :—It is still a matter of doubt, whether a pure regurgitation occurs without a small amount of stenosis or that a pure mitral stenosis without some incompetence occurs.

The pathognomonic findings in an early case of mitral regurgitation fall under the examination of the heart, pulse and, later still, the general symptoms. In suspected organic disease a history of rheumatic fever is invariably got. In well compensated cases mere inspection of the patient can reveal nothing. He may complain of

breathlessness on exertion as the earliest clue to derangement of his heart.

The apex beat of the heart is displaced outwards and downwards but it is stated that in mere functional mitral incompetence the apex beat is displaced only outwards. In children the precordium may be bulged out. Owing to the ventricular hypertrophy a heaving apex beat may be felt.

Auscultation in the mitral area reveals a systolic murmur, conducted along the left to the axilla or to the angle of the scapula, usually of soft blowing character. Occasionally the murmur is heard only at the angle of the scapula. The murmur does not alter with the position of the patient. It is accentuated by exertion. A systolic thrill might be felt at the region of the apex beat. The second sound in the mitral area is scarcely audible.

The second sound in the pulmonary area is accentuated or reduplicated.

Relative incompetence occurring in the triscupid area may reveal a systolic murmur at the left side of the lower part of the sternum.

The pulse is soft, the upstroke rather abrupt, distinct dicrotism may occur and the blood pressure is low. In slight lesions the pulse may not be affected at all. In very late stages an irregular pulse may be felt owing to the cardiac failure.

As the disease progresses the left auricle, right ventricle and right auricle get hypertrophied and enlarged. General symptoms become marked; pulmonary congestion occurs and exhaustion of the heart muscle supervenes. Pulmonary congestion is revealed by dyspnoea, cough, expectoration sometimes tinged with blood, areas of dulness at the bases and fine rales over these regions.

Epigastric pulsation, pulsation in the jugular veins, cyanosis, marked oedema first in the legs and later in the whole body, sometimes even ascites, all mark dilatation of the right side of the heart. The liver becomes engorged and so palpable, soft and tender. Urine becomes scarce and albuminuria occurs. Indigestion is usually present; the spleen may or may not be enlarged. The patient takes on to an orthopnaed position.

The systolic nature of the murmur, definite line of conductivity, accentuation of the pulmonary second sound and displacement of the apex beat downwards and outwards and a history of rheumatic fever help us to differentiate this organic murmur from a functional one.

Mitral Stenosis :—Mitral stenosis is mostly organic in origin. As in the case of mitral regurgitation for a long time the patient may not have any subjective symptom. The first sign of warning is precordial pain accompanied by palpitation and breathlessness on exertion.

The patient may exhibit marked lividity of the lips, cyanosis, slight swelling around the ankles. Ultimately oedema become more marked, dyspnoea very troublesome, fluid collects in various serous spaces and cardiac failure ensues.

On inspection of the precordium the apex beat may or may not be displaced. Usually it is only laterally. The apex beat may also be diffuse. Palpation reveals a " slappy " apex beat and a presystolic thrill in the mitral area. On percussion the cardiac dulness may be found increased in the lateral direction especially in the right side. In early cases there may be no change in size.

The main auscultatory finding pathognomonic of mitral stenosis is

the presystolic murmur which is best heard in the mitral area just internal to the region of the apex beat and not conducted; the murmur is usually harsh, vibrating and loud. This murmur may entirely be absent when auricular fibrillation has set in and sometimes a mid diastolic or diastolic murmur may be heard instead. Sometimes relative pulmonary incompetence may be noticed by a diastolic murmur in the pulmonary area called Graham Steel murmur. The second sound in the mitral area is scarcely audible. The first sound becomes short, sharp and "slappy" in character.

The pulmonary second sound is usually accentuated or reduplicated.

In the incompetence stage a systolic murmur will also be heard in the mitral area. As soon as cardiac failure sets in the pulse rate increases and the heart beat becomes less forcible and relative tricuspid regurgitation also results.

The pulse in early mitral stenosis may not be affected. In later stages, the anacrotic wave rises suddenly and is short and the fall prolonged. No dicrotism exists. Volume of the pluse is usually poor. The systolic pressure is less but not the diastolic. The force and tension of the pulse are also diminished.

In the later stages all other signs of cardiac failure are seen.

Double Mitral Lesion.—This is always the result of a previous attack of endocarditis. The symptoms take the part of both lesions and the dangers of auricular fibrillation, cardiac failure and tricuspid incompetence are more marked in this case.

The heart is enlarged, the murmur is double in the mitral area; rarely only a systolic murmur is distinct. Accetuation of the pulmonary second sound is more marked in double mitral disease than when a single lesion is present.

Aortic Regurgitation.—The onset of symptoms in aortic incompetence is very insidious. Again shortness of breath is the leading complaint in these patients. The patient is usually anæmic and may complain of giddiness, syncopal attacks, headache, and more severe precordial pain than in a case of mitral disease.

Inspection of the precordium shows sometimes bulging and marked displacement of the apex downwards and outwards. The apex beat is heaving and very forcible in character. A diastolic thrill is usually felt just below the aortic area; sometimes even in the mitral area.

Percussion shows definite enlargement downwards. The right margin is scarcely involved in uncomplicatee cases. Auscultation reveals a definitd diastolic murmur best heard over the inner end of the second right intercostal cartillage, rough and blowing in nature. It is said to be musical or ringing when the lesion is due syphilitic valvulitis. The murmur is conducted downwards along the sternum. The first sound replaced by the murmur. A faint systolic murmur may be heard in the aortic area.

Austin Flint has described a presystolic murmur in the mitral area. The pulse is characteristic in aortic regurgitation. It is described as the "water hammer", "Corrigan pulse" or "collapsing pulse. There is sudden impulse felt on the palpating fingers and the next moment the whole vessel seems collapsed. This effect is enhanced by keeping the patient's arms above the level of the head. A sphygmogram will show that there is a sudden upstroke and an equally sudden fall in the pulse. In between

the beats the artery seems empty. The blood pressure is usually high in cases of aortic regurgitation. The systolic pressure is higher than normal and the diastolic pressure very low.

Murmurs, diastolic in time, are heard in the big arteries of the body and the one heard over the fermoral artery is called the murmur of Durozeiz. Even small arteries as the Superficial temporal are seen to pulsate forcibly in these cases. Capillary pulsation is evident by pressing the finger nails or applying a glass slide to the lips. Some authors say that the pulsation may be seen in the superficial veins of the hands.

As the condition progresses the stress on the mitral ring becomes greater and relative mitral incompetence, stasis in the lungs, involvement of the right side of the heart and gradual onset of cardiac failure are the course of events.

Aortic Stenosis.— Chronic endocarditis is the commonest cause of this condition

Usually the subjective symptoms are insidious and a patient may have aortic stenosis throughout his life-time without noticing any trouble. As in all other valvular lesions precordial pain, breathlessness on exertion, giddiness, sleeplessness and headache are complained of.

Inspection do not convey any particular character. The apex beat is seen outside and down below.

Palpation may reveal a forcible, diffuse slowly rising apex beat. A systolic thrill may be felt in the aortic area and occasionally over the whole chest.

Auscultation reveals a systolic murmur best heard in the aortic area, loud and grating in character, conducted upwards along the course of the great blood vessels. The murmur may even be heard without the aid of a stethoscope.

The first sound in the mitral area is usually muffled and prolonged during the left ventricular hypertrophy. Second sound in the aortic area will vary according to the relative incompetence of the aortic curves. Occasionally it may be very loud and accentuated.

The left ventricle of the heart is enlarged downwards and less so outwards. The right side does not take part in the enlargement in uncomplicated cases.

The pulse is characteristically "anacrotic" in character. The blood pressure is usually low and though the pulse is diminished in force and tension the volume is maintained for a prolonged period in between the beats.

By the progressive left ventricular enlargement relative mitral incompetence with congestion of the lungs and involvement of the right side of the heart ensue. Cardiac failure set in sooner or later.

The chief points which help us in diagnosing a case of aortic stenosis are.

1. A systolic murmur in the aortic area conducted into the carotids.

2. A systolic thrill in the aortic area.

3. Hypertrophy of the left ventricle.

4. A weak second sound.

5. A slow rising well sustained pulse.

As a systolic murmur, anacrotic pulse and systolic thrill are noticed in various other conditions a diagnosis of pure aortic stenosis must be made with great care.

Pulmonary Regurgitation.—This is the rarest of all valvular lesions. It is

usually a congenital affection when stenosis is also present to a small degree. A relative incompetence occurs in various conditions.

Cyanosis, dyspnoea, oedema of the dependent parts, accumulation of fluid in the serous cavities, catarrh of the mucous membranes, general anasarca, engorgement of the viscera, supression of urine, albuminuria are all the signs present. There may be distinct pulsation in the jugular veins, and epigastrium.

The apex beat is displaced to the left.

On palpation a diastolic thrill best felt in the pulmonary area, loud and conducted downwards to the ensiform cartilage is noticed.

The pulse is feeble and of low tension. The blood pressure is usually subnormal.

Gradually right side cardiac failure ultimate results.

Pulmonary Stenosis.— Pulmonary stenosis is the commonest congenital valvular lesion. The acquired form is due to an attack of acute endocarditis.

The symptoms of the acquired type are not so severe as in the congenital type.

The cardinal signs are :—

1. Increased precordial dulness especially beyond the right border of the sternum. (2) Palpable and some times visible pulsation over the whole cardiac area. (3) Loud harsh, systolic murmur over the pulmonary area often accompanied by a coarse thrill. (4) Dyspnoea.

General cyanosis, weakness, syncopal attacks, congestion of the various visera are some of the other signs.

Tricuspid Regurgitation.—Tricuspid incompetence may be either physiological or pathological. In the latter it may again be congenital or due to an organic lesion of the tricuspid valve or only a relative incompetence secondary to other valvular defects as in mitral stenosis, pulmonary stenosis and in any condition producing dilatation of the right ventricle.

Cyanosis, giddiness, headache, insomnia and slight oedema around the ankles are present in the early stages. Dyspnoea is also noted. Digestive disturbances are common. Later on there is definite general anasarca, pulsation of the jugular veins, the veins invariably filling from below upwards ; the pulsations are often ventricular in character, the liver is engorged and pulsating, epigastric pulsations become prominent. Urine is scanty. Involvement of the lungs may produce hydrothorax, haemoptysis or only a bronchial catarrh.

The extent of the heart is increased on percussion to the right side in uncomplicated cases ; a systolic thrill may be felt over the tricuspid region.

On auscultation a blowing soft murmur, systolic in time, can be heard over the tricuspid and it has usually no definite propagation along any fixed line When conducted, it is towards the right.

The pulse is small in volume and poor in tension. In marked incompetence the murmur may be absent.

Tricuspid Stenosis.—This condition also occurs as a congenital or acquired form. In the latter it is usually as a result of endocarditis and associated with mitral stenosis.

The physical signs are as in other cases but the cyanosis is more marked- dyspnoea less marked ; ascitis and tendency to dropsy are also less marked. Liver is usually enlarged, also the spleen. The liver pulsates and this is of the auricular type. Visible pulsations are seen in the veins. The

whole heart is enlarged. A presystolic or diastolic thrill may be felt at the tricuspid area.

On auscultation a presystolic or diastolic murmur harsh or blowing in character is best heard over the tricuspid area. Sometimes no murmur is heard at all. Some authors describe a sharp first sound in the tricuspid area.

Deficiency Disease and Trachoma.*

By Lieut. Col. R. E. Wright, C.I.E., I.M.S.,

Superintendent, Government Ophthalmic Hospital, Madras.

The deficiency disease which is so largely responsible for preventable blindness in children in the Madras Presidency, as also in the greater part of India and other parts of the world, notably China, is the avitaminosis, known as keratomalacia.

Let us briefly consider some of the clinical features of keratomalacia with which most of you, lay and medical, are probably familiar. Its earliest manifestation is a symptom, night blindness, which is therefore not observed in the class of cases we are considering, namely, the young child. It is however the complaint which brings many older children and adolescents to the hospital. The next evidence of this progressive deficiency is the peculiar smokiness of the conjunctiva. This is the earliest obvious sign just as the night blindness is the earliest symptom. One may meet either or both of these in a youth who is apparently healthy looking in other respects. They are however danger signals and if it were possible for the baby to complain of the first, or for the mother to detect the second, the advance of the condition to a serious stage might be averted. When the early signs and symptoms appear, if nothing is done to augment the amount of essential food factors in the diet, the case rapidly progresses and wasting sets in; the patient becomes thin, the skin dry and earthy-looking, the hair appears dry and becomes thin, the mucous membranes also show a diminished secretion and the more accessible membranes of the nose and mouth and throat are seen to be abnormally dry. It is generally somewhere about this stage that we have babies brought to the outpatients department. *Pari passu* with the wasting of the mucous membranes, there is an advance in the eye symptoms. As a rule the smoky conjunctiva becomes dry, wrinkled and greasy looking, the cornea becomes dull and lustreless, and eventually opaque. Occasionally the changes in the eye are of a different type and instead of a dry greasiness, we find a wet dull red conjunctiva. In the one case there appears to be a suppression of the lachrymal secretion, in the second it is excessive. But this does not obscure the essential changes. Little patches covered with a sort of white foam appear on the conjunctiva and are generally situated at either ends of the horizontal diameter of the cornea The cornea eventually undergoes necrosis and ulceration and if untreated, the ulcer perforates the globe and the eye is immediately lost. Should be condition be improved at the stage when both corneae present large ulcers, the child may be restored to good general health, but remains blind on account of the dense scar tissue opacities (leucomata) of the corneae. Certain of these children who show gross ulceration heal with the formation of thin weak scars of the corneae. Such cases may present themselves some years later with well-

* Elizabeth Mathai Lectures, 1934.

marked bulging staphylomata of the corneae. If seen in this state for the first time it would be impossible to tell whether these staphylomata resulted from keratomalacia or other forms of ulceration in early childhood.

It is sometimes quite impossible for the mother to observe the condition of the baby's eyes when she brings the child to the hospital as by the time she has made up her mind to seek relief it requires an expert to open the lids and examine the state of the cornea; but she has probably previously noted that there was something definitely wrong with the eyes and the progressive wasting of the infant drives her to seek relief. By the time the average mother brings the baby to the hospital, the skin is hanging in baggy wrinkles round the joints, the so-called elephant skin, the mucous membranes of the mouth, nose and throat are wasted, glazed and dry, the thin piping or hoarse croaking voice is hardly recognisable as proceeding from a human being. The alimentary tract is affected just as the mucous membrane of the respiratory tract, and diarrhoea of one type or another is present. When this condition of marasmus is reached, the child is, as a rule, blind, but in spite of the appalling general state, it is a relatively easy matter to restore it to comparative health again with cod liver oil. Even if the child is too ill to take cod liver oil by the mouth or to tolerate it in the intestinal tract, it is often possible to save the life of the child by wrapping it in a flannel binder soaked in cod liver oil. We are not here concerned with the general condition or even the tissue changes in the various mucous membranes. What we are considering is the state of the eyes, and by the time the average baby reaches our outpatient department either one or both the eyes have been so damaged as to result in partial or complete blindness, even though health is restored. This is perhaps all that is necessary to say about the clinical aspect of the condition.

The degenerative condition thus designated is due in the main to a deficiency of vitamin A in the diet; vitamins B, C and D are possibly also concerned so that one may perhaps regard it as a polydeficiency. But we need not now discuss what part these latter food factors play. The signs and symptoms observed in human beings who are suffering from keratomalacia are similar to those artificially produced in animals by withholding vitamin A from the diet referred to by experimentists as xerophathalmia. The clinical evidences of keratomalacia have probably been known for thousands of years although it is only recently that scientific research has enabled us to place the condition amongst the avitaminoses. The treatment of certain affections of the eye by the same methods as are in vogue to-day for keratomalacia was known to the ancients. The fact that liver was used successfully in treating night blindness in ancient Egypt, Greece, parts of India, Russia, Japan and elsewhere strongly suggests that it was keratomalacia—of which night blindness is such a prominent symptom—which was dealt with. If, for example, the treatment by means of roasted liver recorded in the "Book of the eyes" of the Egyptian Papyrus of 1500 B. C. deciphered by Ebers in 1872 was for night blindness, and this is likely in view of subsequent ophthalmological history, then it is at least possible that this treatment was for the night blindness of avitaminosis. A reference to the literature bearing on this subject shows that liver administration in various ways was handed down from generation to generation in many countries as a treatment for night blindness. It is unlikely that

this would be so if the treatment was not relatively successful. There are records which show that such night blindness sometimes followed fasts and famine, was sometimes associated with xerosis and sometimes went on to complete blindness, which sequence is true of keratomalacia. To those who have lived in keratomalacia-ridden countries, the old records indicate that the night blindness of retinitis pigmentosa and congenital stationary night blindness, which are permanent and not influenced by treatment, cannot have been the sole causes of the night blindness which determined a world wide belief in a treatment which has been handed down to the present day and which we now find in use in remote districts hardly touched by western medicine, as a specific for the condition we call keratomalacia. We may therefore argue I think that there is strong probable evidence in favour of the view that successfully treated cases included a high percentage of keratomalacia patients.

Other varieties of temporary night blindness hardly enter into the picture, they are not even now taken seriously by people who live in a primitive way unless some of the other evidence of avaitaminosis make their appearance. This degenerative state which we recognise as a deficiency in essential food factors and treat with cod liver oil, and which the ancients recognised in part and treated with liver in various forms, is a complicated state characterised by a march of symptoms and signs which in an advanced state includes a partial necrosis of the corneal tissues with softening, sloughing ulceration and resultant blindness; hence the name keratomalacia.

If untreated, death frequently affords a merciful relief and indeed the deaths registered as due to malnutrition, marasmus, and diarrhoea very frequently record the terminations of the lives of infants blind of that eye affection which is such a prominent feature of this deficiency in food factors essential not only to the nutrition of the eye but to the very existence of the organism. When one compares the records of the causes of preventable blindness in children in Western countries and in the East, it is noteworthy that keratomalacia plays an insignificant role in the former. Its great importance in India was however pointed out in a paper which I published in the *Lancet* of April 11, 1931. In that paper it is stated that keratomalacia is almost certainly the chief cause of preventable blindness in children in India. I stressed the words "almost certainly" and am now glad that I did so, as at that time we did not consider that the hereditary blinding diseases should be included in our survey, but as will be pointed out in the third lecture of this series, I am prepared to-day to include this group which is of enormous importance and interest.

Another point may be noted here which does to show that the responsibility of keratomalacia as a blinding disease may have been underestimated in so far as that particular publication is concerned. In the year's survey of cases attending this hospital on which the figures quoted were based there were about 30 children totally blinded, and 35 more in which practical blindness resulted. But these figures did not include a number of cases in the same years which are recorded as leucoma or of staphyloma of the cornea and which were partially or totally blind for this cause. It is not possible to estimate with any degree of accuracy the frequency of the various causes of leucoma or staphyloma of the cornea, but we know that the common causes are keratomalacia, small-pox, the application of irritant remedies and the ulcerations associated with acute and chronic diseases of the conjunctiva and cornea other than these.

We may therefore include a certain proportion of the cases recorded as blind from leucoma and staphyloma in the keratomalacia group. This would bring the figure for total and practical blindness (and by this one means partial blindness of such a degree as to seriously interfere with earning a livelihood) due to keratomalacia for that particular year to between 70 and 75 out of approximately 20,000 out-patients seen in this period. Approximately 3 per thousand of our hospital cases. We shall see later that the collective group of blinding hereditary diseases sometimes equals, but more often exceeds this figure. You must be content with this idea of frequency as I cannot give figures for the general population or what percentage of the total blind of all ages is due to keratomalacia. Figures in this connection want the most careful analysis if they are not to lead us antray. For example one finds in a pamphlet on "Prevention of blindness" by a very eminent official, that the Census return for blind in India is half a million, but his investigation makes it two millions. A statistician would almost certainly consider the Special Census Officer's figures to be more nearly correct than those of an individual founded at best on a selected and localised survey. We all feel at times that there are more blind in India than the Census return would indicate, but we are not entitled to found a generalised statement on very limited observation which a Special Census Officer could repudiate. As a matter of interest the population of the Madras Presidency is 47,193,602 and the number of blind is 52,279 (1931 Census).

The population of England and Wales is 39,290,000 and the number of blind is 46,822 (1927 Census). However in these lectures we are not considering the total blind at all ages but the preventable blindness of children.

With regard to the treatment of the condition by cod liver oil, we have carried out a considerable amount of experimental work in this hospital for the last 12 years and tried numerous substitutes for cod liver oil, some of which were more palatable. We have not however found anything so efficient as crude cod liver oil. It is not necessary to administer it in large quantities. We have gradually reduced our dosage until, now the average daily quantity of cod liver oil administered in the form of emulsion, for small children is 7½ minims. Of course this does not apply in case the child is unable to take cod liver oil by the mouth. Irradiated ergosterol did not appear to have any better results than cod liver oil, nor did fresh liver, liver powder, etc. It would appear from our former work in this connection that vitamin A alone is not so effective in the treatment of the condition as when supplied in conjunction with other vitamins in the form of crude cod liver oil. One hears a great deal about the anti-infective nature of vitamin A, and apparently many experimentists regard the condition they produce by withholding vitamin A from the diet as productive of a condition in which the organism is more liable to invasion with pathogenic bacteria. As I have explained elsewhere there is no suggestion of this in clinical keratomalacia, I imagine that most of the experimentists have little experience of keratomalacia in bulk as we have. Far from there being any suggestion of an increased liability to organismal invasion the response of a body of an infant almost dead of this deficiency, under treatment with cod liver oil contradicts the idea that organismal invasion holds away. As the alimentary tract may be affected very severely by the bacteria which habitually attack this area, it is sometimes suggested that keratomalacia may follow on dysentery. This seems in our view a mistaken idea and we

consider it is the converse which is true, that true bacillary dysentery may attack the individual affected by the tissue damaged by avitaminosis. With this possible exception there is no evidence that the sufferer from avitaminosis is more liable to invasion by pathogens than other delicate children. In fact the pathogens which have already settled in the conjunctiva, cornea, nasal mucosa, throat, lungs, and intestinal tract suffer a rapid defeat very shortly after the patient is put on cod liver oil. These pathogens have for weeks perhaps been leading a saprophytic existence in the very favourite situations where they might have been expected to cause destruction of the individual earlier had they exercised their specific role, *e.g.*, pneumococci in the respiratory tract.

Prevention.—As suggested in the title of these lectures, this is a preventable disease; it is also an easily trea ed disease. In spite of this it is probably responsible for more blindness in young children in India than any other single condition. Why then should it not be prevented? Simply because the economic conditions do not permit. The question of prevention of keratomalacia and the blindness due to keratomalacia primarily concerns medical men to the extent of elucidating the nature of the blindness, the cause and treatment of the disease, and the method of its prevention. Having pointed this out to the community at large and the administration responsible for the public health, they cannot do more than relieve the limited number of cases which come their way, instruct others in methods of relief and so try to avoid individual suffering. The disease will gradually become illuminated as better conditions of life become established.

TRACHOMA.

I have linked trachoma with deficiency disease more for convenience in spacing the subject-matter of these lectures than anything else. It shares with the latter the distinction of having been well-known to the ancients, but unfortunately hundreds of years of study by the medical profession has not thrown much light on the aetiology or treatment of this affection.

Trachoma is a chronic inflammatory affection of the conjunctiva which sometimes appears to follow an acute onset but frequently sets in insidiously. Its clinical evidences in the early stages are unrecognisable with certainty. All the vaunted criteria for recognising this affection in its beginnings fail again and again so that I personally do not feel justified in teaching students or post-graduates to do anything more than record that a suspicious case is trachoma-like." This, to my mind, is a safer procedure than labelling a doubtful case trachoma and subjecting the patient to some of the appalling forms of treatment recommended for this disease which may do such damage in a non-trachomatous affection as to produce changes in the tissue as may well be mistaken for the later stages of the disease itself; if indeed the disease has not been grafted on to the individual during numerous attendances with other sufferers at some overcrowded dispensary. Another diagnosis which, in my opinion, should never be made is that of "granular lids." It is a method of hedging adopted by some members of the profession when uncertain as to what conjunctival condition they are dealing with. This pseudo diagnosis gives a sort of moral support which enables the doctor to proceed at once with methods of treatment which are calculated to transform a relatively simple affection into a condition of misery for the patient. The general public has a sort of horror for "granular lids" whatever that term may mean, and patients are contended to suffer much at the doctor's hands when

so diagnosed. I regret to see that the term is still used in anti-trachoma propaganda by a distinguished medical pamphleteer. One of the most frequent errors in this connection is mistaking trachoma for that form of chronic conjunctival irritation associated with inspissation of the contents of the small flask glands of the mucous membrane, in which small yellowish seedlike elevations of the conjunctiva make their appearance. But one need not particularise. Practically every variety of conjunctivitis has been labelled ***granular lids*** at one time or another and treated for trachoma.

Aetiology.—An enormous amount of work has been done and is being done in connection with the determination of the cause of this disease. There are distinguished ophthalmologists who consider that they can recognise the disease even in its earliest stages by the appearances of the tissues under the microscope; others who believe it is due to a specific micro-organism which can be isolated; but many remain sceptical as to the possibility of early diagnosis. I must confess to belonging to the latter class. Some years ago the distinguished Rockefeller bacteriologist Noguchi felt certain that he had isolated the organismal agent of trachoma. His *B. granulosis* isolated, (in pure culture), from trachomatous Red Indians, produced a conjunctival condition in chimpanzees very similar to the earlier stages of trachoma in man. In 1927 I was privileged to examine some of Noguchi's chimpanzees and felt sanguine that at last the causative agent had been discovered, for although the clinical evidences in these animals did not include the later stages—the absolutely certain stages—of humans, one felt that this might be due to a difference in soil. Laborious work since then all over the world has failed to confirm Noguchi's conception. In Madras, we failed to transmit the disease to animals although with the co-operation of Col. Cunningham at the King Institute, Guindy, we were enabled to undertake numerous animal experiments.

You may ask, but how do you know you are dealing with a pure trachoma case when doing experimental transmission experiments? We do not know and this element of uncertainty amongst observers as to what constitutes true trachoma makes investigation difficult. Experienced observers do not agree amongst themselves as to the diagnosis of the early stages of the disease and the very late stages are so complicated by other factors as to make aetiological investigation impossible. Differences of opinion also make statistics inaccurate and the classification of clinical stages almost hopeless. It almost makes one blush for shame to pick up a modern review of the current work on trachoma. No fair minded reader can assume anything but that the most hopeless confusion exists in various parts of the world in the fields of histopathology, bacteriology, clinical signs and most of all, treatment. Of course there are clinical pictures about which nearly all experienced observers would agree as to a diagnosis of trachoma even before the advanced stages.

In such cases it is possible to so treat the conjunctiva (by washing), so as to free it from all detectable organisms. Thereafter if some of the affected tissue is removed, and, after suitable treatment, is transferred to the healthy conjunctiva of man or animals one might reasonably expect to reproduce the disease, because long experience has led us to believe firmly that the condition is contagious. Certain well-known ophthalmologists, careful observers, have recorded that they developed trachoma from a splash of infective material. It is said that the incubation period is relatively short, under a fort-

night. Still experience does not strongly support the view that under good hygienic conditions the affection is anything but contagious with difficulty. It is of course quite likely that in this conjunctivitis complex, we are dealing with more than one affection and that in the late stages of one or other of these conditions the picture is complicated by still other infections. In 1932 we tried to find out something about the infectivity of the disease. A case was selected in this hospital in which a number of observers agreed that trachoma was well established, but not too far advanced. With due bactetiological precaution material was transferred from the patients conjunctiva to that of a blind volunteer in which the conjunctiva was normal. Five days afterwards the patient developed what might well have been the early evidences of trachoma in the eye which had received the implantation. Three days later material collected from this eye failed to give a culture of granulosis when examined at the King Institute, Guindy. On the ninth day the second eye became infected. At no time subsequently did gross changes appear in the cornea of either eye, (although microscopic vascularisation was observed) which would justify a diagnosis of trachoma. The eye remained in what one might term a trachoma-like condition for a while and then spontaneous improvements took place till in six weeks the patient was apparently normal again. A year later his conjunctivae were normal. The case is an isolated one and therefore of no real scientific value, but it shows that even a deliberate implantation is not necessarily successful in producing this disease under favourable experimental conditions which is apparently readily transmitted from man to man in almost epidemic form under other conditions, *e.g.*, old time warfare. There is no doubt that there are many factors which influence the spread of this disease, the relative importance of which it is impossible to estimate. If we assume an infective agent either a filter passing virus or a microscopic culturable organism we must admit that its conditions of spread are peculiar. This world distribution map of the disease showing approximate percentages of population affected gives you some idea as to its prevalence. It is a rough guide to the possible association with race, religion, social conditions, food supply, density of population, humidity, temperature, elevation, general health, etc. In so far as we are concerned in India it would appear to be a disease more of Mohammedans than Hindus; in South Indian Hindus it is more common in Brahmins. In my experience of Mohammedans it appears to be commoner in women; the same experience is shared by certain competent observers in the north. Col. Kirwan, Professor of Ophthalmology, Calcutta, advises me that it is relatively uncommon amongst Bengalis. The percentages of trachoma amongst the total eye cases treated in several widely scattered ophthalmic teaching centres are approximately :—

Lucknow (United Provinces).	24% (treated for trachoma) Of the other eye cases seen between 20 to 30% also have trachoma. 55%
Lahore (Punjab).	50%
Bombay (Bombay Presidency)	14·5%
Madras (Madras Presidency).	3·5%
Rangoon (Burma).	75%

I must here thank Professors N. M. Dick, J. N. Duggan and B. G. S. Acharya for their communication regarding blinding diseases in their areas of work.

It is associated with overcrowding, indoor living, dark confined unventilated housing, the purdah, rather than with poverty *per se*. It is more

frequent in urban than rural populations. It is not necessarily a disease of hot countries ; it is about as common in the cold wet dark slums of Dublin as in hot humid poverty stricken areas of Madras. It is of interest to observe here that in some parts of India where there is no real cold season the disease is not so prevalent. In such localities the poor rural inhabitants are of cleaner habits ; they go practically naked instead of wearing layers of rancid clothing, they lose no opportunity of getting into water and washing, although unfortunately for many of our South Indian people the water may be green and putrid and contaminated with the causative agent of all manner of bowel infections and infestions. You are all familiar with its frequency in Mongols and Jews ; possibly race has a determining influence, we do not know. There are many points in common however between the wretched conditions of life in the lowest strata of society in China, Palestine, the Slav countries and Egypt. It is not a disease of the better classes of Anglo-Saxons even though exposed again and again. It is a disease of the great unwashed, the greasy and lousy who froust in the fog of overcrowded dark ill-kept and ill-ventilated dwellings. At least these types and conditions, where coincident, appear to mark reservoirs of the affection.

For purposes of these lectures however trachoma does not concern us to the same extent as some of the other affections dealt with, as its blinding effect in small children under school age is relatively small. It is more a disease of adolescence and middle life and it is in the later age groups that it produces its effects on the total blind rate. Still we must regard it as one of the responsible causes of preventable blindness in young people. We may now ask ourselves, is it preventable, and if so, what are we doing to prevent it in India. The answer to the first question is, yes, the answer to the second, nothing of any consequence.

The difficulties of prevention in a country like India would be enormous and uneconomical. The chief methods of prevention are inspection with segregation, and control of immigration However feasible such measures may be in islands like Great Britain and Japan or in a concentrated but strictly controlled population, *e.g.*, the armies in the great war, they are out of the question here where the frontiers (N. W., N. and N. E.) ara uncontrollable. Pending a sound knowledge of the cause of the disease, the conditions which favour its spread, and a State preventive policy based on these, we, Government medical servants, play at prevention here and there and from time to time by means of propaganda through the medical and educational departments, leaflets and posters, lectures, inspections of school children, etc. Similar activities are carried on in a tentative way over localised areas by the Blind Relief Association (Bombay), the Junior Red Cross and other similar organisations. Mysore is perhaps most progressive. Dr. B. K. Narayana Rao, Professor of Ophthalmology, Minto Ophthalmic Hospital, Bangalore, advises me that compulsory medical inspection of all students in all grades of education is legislated for, together with adequate arrangements for the treatment of cases in suitable centres and financial help to the needy and deserving for the purpose.

Relief is carried on meantime. The organisations dealing with treatment are the thousands of hospitals and dispensaries maintained by the various local Governments and Native States and a few unofficial organisations such as the Blind Relief Association (Bombay). Such treatment, however, humanely intended can hardly affect to any appreciable degree the total amount of damage to the eyes due to this

disease. I will not discuss treatment except to say that our experience goes to show that unless an efficient follow up system is established, cases which have been brought to a stage of practical cure relapse when they are lost sight of. One of the general and effective form of treatment is by means of the application of copper sulphate; it is of interest to note that it is one of the ancient methods of attempting to cure this disease. Trachoma is one of those unfortunate diseases which the partient only gets once, as it is never absolutely cured as far as we know even though a practical cure may be affected. In January I was asked by Chairman of the International Association for the Prevention of Blindness to attend their meeting in Paris in May and also the meeting of the International Organisation against Trachoma held simultaneously and to send a brief report summarising the public health and administrative measures adopted in India versus trachoma. I regret that I am unable to attend the meeting, but the report is a very easy matter and may be summarised in one word "*nothing*", except as stated above, school legislation in Mysore.

It will be seen from the foregoing that the position with regard to trachoma is very unsatisfactory in India. The Government organisations and the voluntary organisation practice really in the form of treatment. At school-going age, when the disease results first becomes a serious problem, we find the beginnings of an attempt to stir up an interest in the affection in the sporadic reports of inspecting medical officers and others, but for all practical purposes, the matter ends there. The diagnosis is uncertain and the statistics inaccurate, but nevertheless it appears to be one of the most serious menaces to adult sight in certain areas, notably the Punjab and the United Provinces. It is perhaps as well at the present time that large amounts of money should not be diverted to doubtful measures for the control of trachoma in India even if this were likely to appeal to our financial experts. The curtailment of trachoma will probably follow on better conditions of housing, feeding, social education, *e.g.*, the emancipation of women (notably in Mohammedan races). In brief on a betterment in the general care of the public health, and the beginning of its prevention must originate in the progress made in this important function of the State.

REVIEW.

A Hand Book of Laboratory Technique.

Many books on clinical pathology and laboratory technique are available, but most of them are too big for the pocket and contain material which do not form essentials to the students woking in the laboratories. "HAND BOOK of LABORATORY TECHNIQE, URINE" is the first of the series issued by Dr. Govinda Reddy, M.D., of the Department of Pathology, Madras Medical College. This first part deals with not only the various methods of clinical examination of the Urine but indications of pathological conditions and the interpretations of various laboratory results. It is replete with the information valuable not only for the student but also for the busy Practitioner. Handy in size, the printing and get up is satisfactory. The illustrations would have come out better if on glazed paper. Some of them especially figs. 15 and 16 are more diagramatic. A micro drawing of the specimens will, we are sure, enhance the value of the book. One might say that the name is too modest as this hand book could well be called a Hand Book of Clinical Laboratory Medicine. Every student should possess a copy of this hand book.

PRIMARY F.R.C.S., ENGLAND.

Two years ago when Major-General C. A. Sprawson, the present Director-General, Indian Medical Service, was in Madras, he and the Principal of the Medical College of Andhra University, began a correspondence with the Royal College of Surgeons of England with a view to having a Primary Examination in Anatomy and Physiology for the Fellowship of the College conducted in India. The object of this was to obviate the necessity for candidates from the Universities of India having to go to England in the middle of their course, as well as to diminish the expenditure of the individual candidate, and so enable those students who were not well off to be placed in a better position to obtain the Higher Qualification.

A cable from the Secretary of the College of Surgeons has been received agreeing to send Examiners to conduct such an examination in India in the third week of December of this year, conditional on not fewer than thirty candidates being forth-coming. Though the examination is not to be held until December, it is necessary that the number of candidates should be known and the fees deposited before the end of July, otherwise arrangements cannot be made in London in time.

In order to cover the expenditure required for such an Examination it would be necessary that every candidate who proposes to enter for the Examination should send Rs. 360 (Rupees three hundred and sixty only) with his name and address when the exact date and place of Examination would be communicated to him.

Students or Graduates who wish further information on the subject should communicate with **Mr. F. Macrae C/o The Director-General, Indian Medical Service, Gorton Castle, Simla.**

BULLETIN

OF THE

SOUTH INDIAN MEDICAL UNION

KILPAUK, MADRAS.

The Society Journal with the largest circulation among the Independent Medical Profession of South India.

I am glad to announce the favourable response to our request for support from the profession. It is hoped that very soon the Bulletin will be raised into a Journal.

The Bulletin has now a wide circulation among the members of the Independent Medical Profession and we hope that with the conversion of the Bulletin into a Journal its area of usefulness and circulation will also be widely increased.

Books and other matter for review will be accepted and should be addressed to The Publicity Section, South Indian Medical Union, Madras.

T. Krishna Menon

Publicity Officer.

South Indian Medical Union.

CLINICAL MEETINGS.

SESSION 1934—1935.

Members of the South Indian Medical Union and Others desirous of reading papers at the Clinical Meetings of the Union during Session 1934—1935 are requested to send their names with the title of the paper they wish to read, to the Secretary, South Indian Medical Union, Kilpauk.

The date of which the papers would be read will be informed later.

K. C. PAUL,
P. RAMA RAU,
Secretaries.